

## RESCUE COAT WITH COVERED LINER ZIPPERS

### BACKGROUND OF THE INVENTION FIELD OF THE INVENTION

The present invention relates to rescue coats worn by persons involved in urban search and rescue operations, and in particular to such rescue coats which include removable liners.

### THE PRIOR ART

Rescue coats for use by personnel conducting urban searches and rescues, e.g., in buildings which may be burning or in other hazardous environments, are commonly available. Such coats generally include an outer shell and a removable liner and are less bulky and lighter in weight than conventional fire fighting coats. The outer shells of such coats are formed with left and right front panels that mount respective left and right vertical zipper halves along their confronting sides which are interengagable by a conventional slider. These zipper halves with slider provide a closure zipper for the coat. The left and right front panels also respectively mount vertical zipper halves inside of their confronting sides which are interengagable with zipper halves on the confronting sides of the left and right front panels of the removable liner. These zipper halves with respective sliders provide left and right liner zippers for mounting the removable liner in the outer shell. However, if these liner zippers become hot due to use near a fire or in an otherwise heated environment, the liner zippers can cause discomfort to the wearer, or even be hazardous.

It is an object of the present invention to provide a rescue coat which is constructed such that the liner zippers are covered by a protective material to thereby protect the wearer from any discomfort or hazard associated therewith.

## SUMMARY OF THE INVENTION

According to this invention a rescue coat for use in urban search and rescue situations includes an outer shell and a removable liner, the outer shell being formed by an outer layer of a fire-resistant material and an inner layer of a moisture barrier material, and the removable liner being formed of a thermal insulating material. The outer shell includes left and right front panels that mount respective left and right vertical zipper halves that can be interengaged to close the coat, as well as separate left and right vertical zipper halves that can be interengaged with zipper halves on the liner to mount the liner within the outer shell (left and right liner zippers). The left and right panels also include vertical strips of material which provide vertical flaps that respectively cover the inner surfaces of the left and right liner zippers. By covering the inside surfaces of the left and right liner zippers, the vertical flaps protect the wearer from any discomfort, inconvenience or danger posed by the liner zippers.

The invention will be better understood by reference to the attached drawings taken in conjunction with the following discussion

## BRIEF DESCRIPTION OF THE DRAWINGS

In the figures,

Fig. 1 is a front view, i.e., as seen from the outside, of a portion of a rescue coat constructed according to a preferred embodiment of the present invention and showing its left and right front panels connected together by a closure zipper, as well as outer covering flaps partially interconnected upwardly from their lower ends by hook and loop strips thereon,

Fig. 2 is a rear view, i.e., as seen from the inside, of the same portion of the rescue coat of Fig. 1 and showing a jacket liner completely connected by a

left liner zipper to the left front panel and partially connected by a right liner zipper to the right front panel, with inner covering flaps of the right and left front panels covering the left and right liner zippers,

Fig. 3 is a sectional view through the rescue coat of Fig. 1 as seen along line 3-3, and

Fig. 4 is a sectional view through the rescue coat of Fig. 1 as seen along line 4-4.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figs. 1-4 depict a front portion of a rescue coat 10 with covered liner zippers according to the invention. In the following discussion the terms "outside" and "outer" will refer to positioning external to the coat when closed and the terms "inside" and "inner" will refer to positioning internal to the coat when closed.

The rescue coat 10 includes an outer shell S that includes a left front panel 20 and a right front panel 30. The coat also includes a removable jacket liner 40 which is preferably made fleece (the jacket liner is preferably constructed such that it can be worn independently of the outer shell). The right and left front panels can include a conventional reflective band 50 which extends completely around the outside of the shell (not shown) for identification purposes.

As best seen in Figs. 3 and 4, the left front panel 20 includes an outer layer 21 and an inner layer 22, and the right front panel 30 includes an outer layer 31 and an inner layer 32. The outer layers 21 and 31 are made of the same conventional fire-resistant material (two possible materials are Nomex® IIIA aramid duck-weave fabric that has a water-repellant finish or MILLENIA SR 40% ZYLON®/60% KEVLAR® blend in rip-stop weave that has

a water-repellant finish), while the inner layers 22 and 32 are made of the same conventional moisture barrier (a useful material is Crosstech S/R® two-layer laminated polytetrafluoroethylene material). On side edges located closest to one another when the coat 10 is closed, the outer layer 21 provides a folded-over side edge 21a and the outer layer 31 provides a folded-over side edge 31a. Likewise, the inner layer 22 provides a folded-over side edge 22a and the inner layer 32 provides a folded-over side edge 32a. The side edges 21a and 22a are connected along their vertical lengths by stitching 23 and the side edges 31a and 32a are connected along their vertical lengths by stitching 33.

A material strip 24 having a vertical sequence of zipper teeth providing a zipper half 25 is connected by the stitching 23 to the inside surface of the side edge 21a so that the teeth extend towards the right front panel 30 when the coat is closed. Similarly, a material strip 34 having a vertical sequence of zipper teeth providing a zipper half 35 is connected by the stitching 33 to the inside surface of the side edge 31a so that the teeth extend towards the left front panel 20. A slider 60 (see Fig. 1) can be moved along the zipper halves 25 and 35 to engage or disengage the teeth thereof in a conventional manner. The zipper halves 25 and 35, together with the slider 60, provide a closure zipper 11 for the coat 10.

A material strip 26 having a vertical sequence of zipper teeth providing a zipper half 27 is connected by the stitching 23 to the inside surface of the side edge 22a so that the teeth extend opposite to the right front panel 30, and a material strip 36 having a vertical sequence of zipper teeth providing a zipper half 37 is connected by the stitching 33 to the inside surface of the side edge 32a so that the teeth extend opposite to the left front panel 20. The teeth of these zipper halves 27 and 37 can be interengaged with vertical sequences of zipper teeth providing zipper halves 41 and 42 along opposite

side edges of the jacket liner 40 by sliders (see slider 70 in Fig. 2 which interengages or disengages the teeth 37 and 42 as it is moved upwardly or downwardly). The zipper halves 27 and 41 with associated slider form a left jacket liner zipper 12 and the zipper halves 37 and 42 with associated slider form a right jacket liner zipper 13.

A double layered material strip 28 is connected along one side 28a by the stitching 23 between the material strip 24 and the side edge 22a, and it is bent in a general U-shape to provide a doubled-over center portion 28b which extends over the inside surface of the closure zipper 11 and then back to form a vertical flap portion 28c which extends over the inside surface of the left liner zipper 11). The strip 28 is connected to the material strip 26 at a location between the center portion 28b and the vertical flap portion 28c by stitching 23 (see Fig. 4). The material strip 28 is made of the same fire-resistant material as the outer layer 21.

A double layered material strip 38 is connected along one side 38a by the stitching 33 between the material strip 34 and the side edge 32a, and it is bent in a general U-shape and connected by the stitching 33 to the inside of material strip 36 so as to provide a vertical flap portion 38b that extends over the inside surfaces of the right liner zipper 12 (see Fig. 4). The material strip 38 is made of the same fire-resistant material as the outer layer 31.

The vertical flap portion 28c of strip 28 constitutes a covering for the liner zipper 11, and the vertical flap portion 38b of strip 38 constitutes a covering for the liner zipper 12.

A weather flap 29 with a hook and loop (e.g., Velcro®) strip 29a is attached to the outer side of the outer layer 21 of the shell and an outer flap 39 with a hook and loop (e.g., Velcro®) strip 39a is attached to the outer side of the

outer layer 31, the outer flap 29 being positionable over the closure zipper 11, and the outer flap 39 being positionable over the flap 29 so that the Velcro® strips 29' and 39' will engage and thereby help close the coat and simultaneously provide a weather shield for the closure zipper 11.

Although a preferred embodiment of the rescue coat with covered liner zippers has been shown and described, modifications therein can be made and still fall within the scope of the appended claims.